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10/813,542	03/30/2004	Guohua Li	09792909-5859	5327

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EXAMINER	
DOVE, TRACY MAE	

ART UNIT	PAPER NUMBER
1745	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/813,542	LI, GUOHUA	
	Examiner	Art Unit	
	Tracy Dove	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-5 and 7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-5 and 7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the communication filed on 5/18/07. Applicant's arguments have been considered, but are not persuasive. Claims 1, 3-5 and 7 are pending. This Action is made FINAL, as necessitated by amendment.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claims 1 and 5 recite the broad recitation at least one kind selected from the group consisting of titanium (Ti),

magnesium (Mg) and aluminum (Al), and the claim also recites the complex oxide formula containing only Li, Mn, Cr and Al which is the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 and 5 are rejected under 35 U.S.C. 102(b)/103(a) as being anticipated by, and alternatively unpatentable over, Fukai et al., JP 2001-122628.

Fukai teaches a lithium ion secondary battery comprising a lithium-manganese multi-component oxide particulate positive electrode active material composition. The composition has the formula $Li_xMn_{1-y-z}M_yN_zO_a$ wherein M denotes Cr and/or Al and N may be Mg or Ti. In the formula, $0.8 \leq x \leq 1.2$, $0 < y \leq 0.2$, $0 \leq z \leq 0.2$ and $1.8 \leq a \leq 2.3$ (abstract). Fukai teaches M may be a mixture of Cr and Al when z=0 (0079,0081). The oxide is obtained by mixing materials with water as a dispersion medium (0060). Thus the claims are anticipated.

The claims are alternatively unpatentable. A 35 U.S.C. 102 /103 combination rejection is

permitted if it is unclear if the reference teaches the range with "sufficient specificity." The examiner must, in this case, provide reasons for anticipation as well as a motivational statement regarding obviousness. Ex parte Lee, 31 USPQ2d 1105 (Bd. Pat. App. & Inter. 1993) (expanded Board). The courts have ruled where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In re Swain et al., 33 CCPA 1250, 156 F.2d 239, 70 USPQ 412. The courts have held that a limitation merely with respect to proportions in a composition of matter or process will not support patentability unless such limitation is "critical". Minerals Separation, Ltd. v. Hyde, 242 U.S. 261 (1916).

*

Claims 3, 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukai et al., JP 2001-122628.

Fukai teaches a lithium ion secondary battery comprising a lithium-manganese multi-component oxide particulate positive electrode active material composition. The composition has the formula $Li_xMn_{1-y-z}M_yN_zO_a$ wherein M denotes Cr and/or Al and N may be Mg or Ti. In the formula, $0.8 \leq x \leq 1.2$, $0 < y \leq 0.2$, $0 \leq z \leq 0.2$ and $1.8 \leq a \leq 2.3$ (abstract). Fukai teaches M may be a mixture of Cr and Al when z=0 (0079,0081). The oxide is obtained by mixing materials with water as a dispersion medium (0060)..

Fukai does not teach the claimed range for f (manganese) or g (chromium). However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because claims that differ from the prior art only by slightly different (non-overlapping) ranges are prima facie obvious without a showing that the claimed range

achieves unexpected results relative to the prior art. See In re Woodruff, 16 USPQ2d 1935, 1937 (Fed. Cir. 1990). See also In re Huang, 40 USPQ2d 1685 (Fed. Cir. 1996) Claimed ranges of a result effective variable, which do not overlap the prior art ranges, are unpatentable unless they produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art. Fukai teaches y and z can be at most 0.2, thus, manganese cannot be less than 0.6, which is slightly outside the claimed range of 0.2-0.5 for manganese.

Regarding claim 4, obtaining the oxide by mixing the materials with an ethanol dispersion medium would have been obvious to one having ordinary skill in the art at the time the invention was made because Fukai teaches the oxide may be obtained by mixing the materials with water as a dispersion medium (0060). Applicant has represented water and ethanol dispersion mediums as equivalents in the claims and throughout the specification.

Response to Arguments

Applicant's arguments filed 5/18/07 have been fully considered but they are not persuasive. Applicant argues Fukai teaches that M may be a mixture of Cr and Al when $z = 0$, which results in the total of manganese and chromium adding up to $(1 - y) + y$ which is equal to 1 (outside the claimed range of $b + c$ is greater than 0.5, but less than 1). Examiner disagrees with Applicant's analysis of the Fukai reference. Specifically, y is the subscript of M, which may represent a mixture of Cr and Al when $z = 0$. Thus the total of manganese, chromium and aluminum adds up to $(1 - y) + y$, which reads on the claimed invention. Furthermore, Fukai teaches a composition having the formula $Li_xMn_{1-y-z}M_yN_zO_a$ wherein M denotes Cr and/or Al and N may be Mg or Ti. In the formula, $0.8 \leq x \leq 1.2$, $0 < y \leq 0.2$, $0 \leq z \leq 0.2$ and $1.8 \leq a \leq 2.3$.

Applicant asserts Fukai fails to teach or suggest the criticality of the impact of values on the total composition on the magnesium and of the chromium are less than 0.5 on the charge-discharge capacity properties. However, the at least claims 1 and 5 do not require magnesium in the complex oxide. Furthermore, the assertion doesn't show evidence of unexpected results because unexpected results must distinguish the *claimed invention* over the *prior art of record.*

Applicant argues Fukai teaches 1) the composition f + g of the total of manganese and chromium is specified to be larger than less than 1; 2) that the composition f of manganese satisfies $0.2 < f < 0.5$; and, 3) the composition f of chromium satisfies $0.3 < g < 1$. Examiner has admitted Fukai does not teach the claimed range for f (manganese) or g (chromium). However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because claims that differ from the prior art only by slightly different (non-overlapping) ranges are prima facie obvious without a showing that the claimed range achieves unexpected results relative to the prior art. See In re Woodruff, 16 USPQ2d 1935, 1937 (Fed. Cir. 1990). See also In re Huang, 40 USPQ2d 1685 (Fed. Cir. 1996) Claimed ranges of a result effective variable, which do not overlap the prior art ranges, are unpatentable unless they produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art. Fukai teaches y and z can be at most 0.2, thus, manganese cannot be less than 0.6, which is slightly outside the claimed range of 0.2-0.5 for manganese. Applicant has not shown unexpected results that distinguish the *claimed invention* over the *prior art of record.* A reference teaching that differs from the claimed invention only by slightly different (non-overlapping) ranges is prima facie obvious (does not teach away from the claimed invention as incorrectly asserted by Applicant).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is 571-272-1285. The examiner can normally be reached on Monday-Thursday (9:00-7:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

July 13, 2007

TRACY DOVE
PRIMARY EXAMINER